A.O.SMITH

Dura-Power

COMMERCIAL ELECTRIC
WATER HEATERS
DVE–125 THRU 10,000
DHE–200 THRU 10,000

STANDARD FEATURES

GLASS-LINED TANK — Tank interior is coated with glass specially developed for use in water heaters. Tanks rated at 125 psi working pressure; 150 psi or 160 psi working pressure is optional. Vermin proof fiber glass insulation reduces costly heat loss. Constructed to Section IV of ASME code, and UL standards. Tanks have channel skid base. A 4" x 6" handhole is furnished on 500, 600 and 700 gallon models; 11" x 15" manhole is furnished on 800 gallon and larger sizes.

INCOLOY IMMERSION HEATERS — Heavy-duty medium watt density elements (three/immersion heater) have incoloy sheathing: provide excellent protection against oxidation and scaling. The input ranges from 15KW to 3000KW (see accompanying chart).

AVAILABLE WITH OPTIONAL GOLDENROD ELEMENTS — All models are available with the Goldenrod 24K gold plated elements (patent pending). Goldenrod Elements provide long-life and five times the scaling resistance of standard incoloy elements. Goldenrod Elements carry a three-year warranty against failure due to scale.

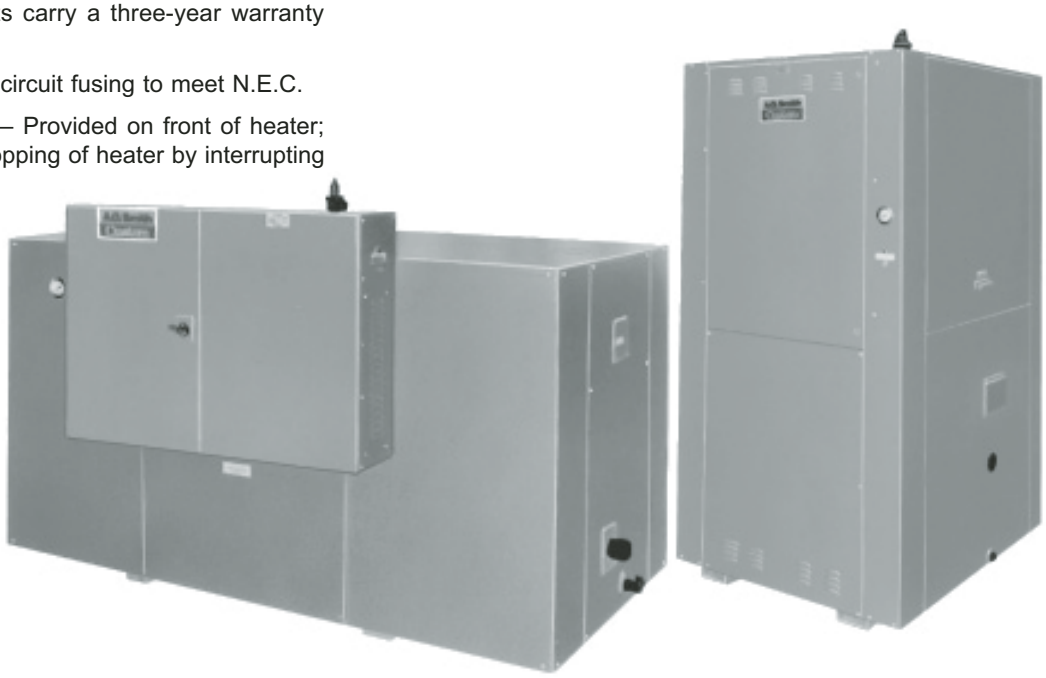
FUSING — Control and power circuit fusing to meet N.E.C.

PILOT SWITCH AND LIGHT — Provided on front of heater; permits manual starting and stopping of heater by interrupting power to control circuit.

MEETS OR EXCEEDS THE REQUIREMENTS OF ASHRAE 90.1b-1990 STANDARD FOR ENERGY EFFICIENCIES.

UL ® **ASME**

GOLDENROD 24K GOLD ELEMENTS



MAGNETIC CONTACTOR(S) — Heavy duty UL rated for 100,000 cycles.

LOW WATER CUTOFF — Probe type electric low water cutoff prevents energizing of elements in the event of low water condition.

120 VOLT CONTROL CIRCUIT — 120 volt control circuit is powered by fused transformer.

IMMERSION THERMOSTAT — Immersion temperature control (one per 60KW) is adjustable to 180°F; high temperature cutoff is manual reset, adjustable type.

OTHER STANDARD FEATURES

• Color coded circuitry for easier servicing • Anode rods for maximum corrosion protection • Standard voltages include 208, 240, 480, 600 volt single or three-phase. For other voltages consult factory. • Factory installed terminal block(s) • Cabinet has baked enamel finish • Prewired element terminal leads • Temperature and pressure relief valve • 2" dial temperature gauge • Immersion type thermostat and high limit for faster response.

OPTIONAL DUAL ENERGY SOURCE CAPABILITY — Provides emergency back up energy source or winter/summer boiler operation. Can be specified with optional water to water or steam to water heat exchangers. Both single and double wall heat exchangers are available. Complete control packages can be factory installed for hook-up and run capability.

LIMITED WARRANTY OUTLINE

If the tank should leak any time during the first three years, under the terms of the warranty, A. O. Smith will repair or replace the heater; installation, labor, handling and local delivery extra. **THIS OUTLINE IS NOT A WARRANTY.** For complete information, consult the written warranty or A. O. Smith Water Products Company.

Warranty does not apply to product installed outside of the United States of America or its territorial possessions and Canada.

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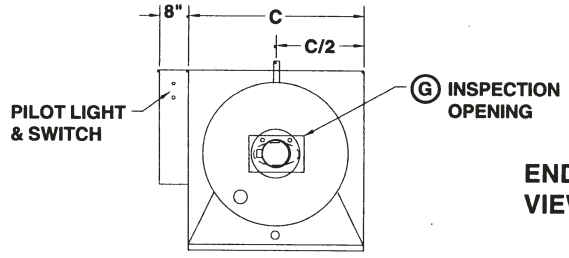
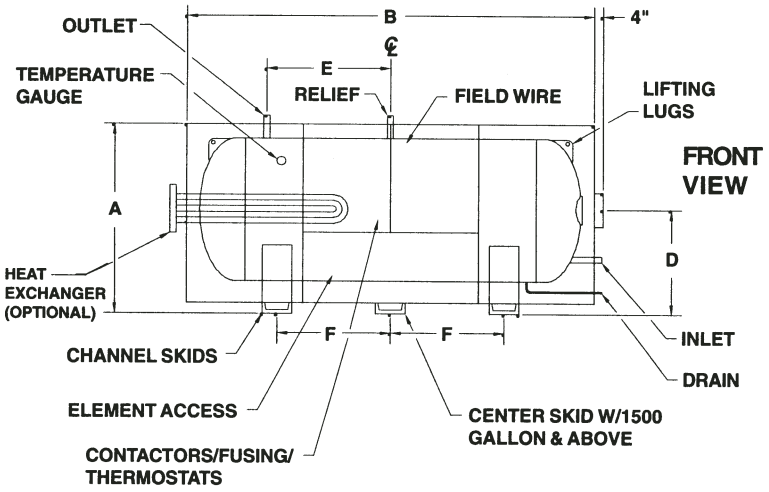
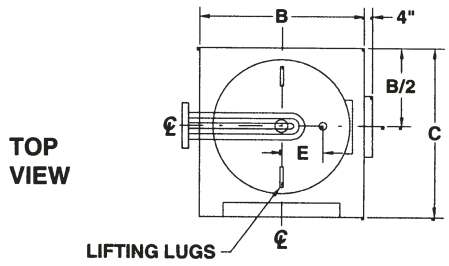
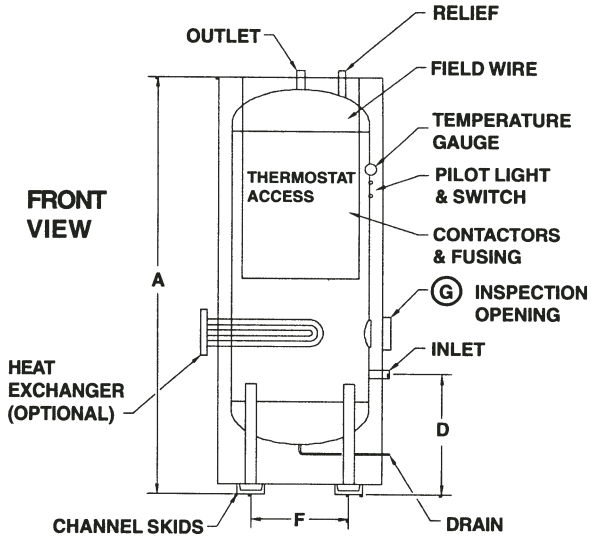
HORIZONTAL MODELS





VERTICAL MODELS





ALL DIMENSIONS IN INCHES

A. O. Smith Model*	Nominal Gallon Capacity	Maximum KW Input	Height A	Width (Length) B	Depth C	D	E	Skid Spacing F	Inspection Opening G	Inlet Outlet Opening	Drain Opening	Relief Valve Opening**
HORIZONTAL ELECTRIC STORAGE HEATER												
DHE-200	200	180	38-1/2	77	36	10-1/2	17-1/2	18		1-1/2	3/4	3/4
DHE-250	250	240	38-1/2	91	36	10-1/2	24	24		1-1/2	3/4	1
DHE-300	300	300	44-1/2	81	42	8-1/4	17	18	Optional	2	3/4	1
DHE-350	350	330	44-1/2	93	42	8-1/4	23	24		2	3/4	1
DHE-400	400	390	44-1/2	100	42	8-1/4	26-1/2	27-1/2		2	3/4	1
DHE-500	500	480	51	94	48	14	24	24	4" X 6"	2	1-1/4	1
DHE-600	600	600	51	109	48	14	32	32		2	1-1/4	1
DHE-700	700	690	51	121	48	14	38	38	Handhole	2	1-1/4	1
DHE-800	800	780	57	111	54	16-1/2	32	32		2	1-1/2	1
DHE-1000	1000	990	61	111	60	16-1/2	29-1/2	29-1/2		3	1-1/2	1
DHE-1250	1250	1200	61	138	60	16-1/2	43	43		3	1-1/2	1
DHE-1500	1500	1500	61	150	60	16-1/2	50	49	11" x 15"	3	1-1/2	1
DHE-2000	2000	1980	70	177	66	20	60	60	Manhole	3	2	1-1/4
DHE-3000	3000	3000	76	211	72	20	72-1/2	74		3	2	1-1/2
DHE-5000	5000	3000	82	296	78	20-1/2	113-1/2	115		3	2	1-1/2
DHE-7500	7500	3000	94	317	90	21-1/2	121	119		4	2	1-1/2
DHE-10,000	10,000	3000	106	345	102	22	132	130		4	2	1-1/2
VERTICAL ELECTRIC STORAGE HEATER												
DVE-125	125	120	78-1/2	30	37	16	6	17		1-1/4	3/4	3/4
DVE-150	150	150	83-1/2	30	37	16	6	17		1-1/4	3/4	3/4
DVE-150L	150	150	59-1/2	36	43	17-1/2	6	21		1-1/4	3/4	3/4
DVE-200	200	180	79-1/2	36	43	17-1/2	6	21		1-1/2	3/4	3/4
DVE-250	250	240	93	36	43	17-1/2	6	21	Optional	1-1/2	3/4	1
DVE-300	300	300	83-1/2	42	49	19	6	25-1/2		2	3/4	1
DVE-350	350	330	95-1/2	42	49	19	6	25-1/2		2	3/4	1
DVE-400	400	390	102-1/2	42	49	19	6	25-1/2		2	3/4	1
DVE-500	500	480	97	48	55	21	6	30	4" X 6"	2	1-1/4	1
DVE-600	600	600	112	48	55	21	6	30		2	1-1/4	1
DVE-700	700	690	124	48	55	21	6	30	Handhole	2	1-1/4	1
DVE-800	800	780	116	54	61	23	8	34		2	1-1/2	1
DVE-1000	1000	990	116	60	67	24-1/2	10	38		3	1-1/2	1
DVE-1250	1250	1200	143	60	67	24-1/2	10	38	11" x 15"	3	1-1/2	1
DVE-1500	1500	1500	155	60	67	24-1/2	10	38		3	1-1/2	1
DVE-2000	2000	1980	183	66	73	25	12	42-1/2	Manhole	3	2	1
DVE-3000	3000	3000	217	72	79	27-1/2	14	47		3	2	1-1/2
DVE-5000	5000	3000	309	78	85	30	14	51		3	2	1-1/2
DVE-7500	7500	3000	330	90	97	30	14	59-1/2		4	2	1-1/2
DVE-10,000	10,000	3000	358	102	109	30	14	68		4	2	1-1/2

*Complete Model Number includes the desired KW at end, e.g.: DVE-500-120 when KW = 120.
**Size may vary according to KW input.
Minimum installation clearances required: 30" from front, 12" from top, and 24" from right side.

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STANDARD KW INPUTS

Standard KW Ratings	Number of Immersion Heaters	BTU Input & Output	GPH Recovery 100°F Rise	Number of 50A Contactors Three-Phase 208V, 240V	Number of 50A Contactors Three-Phase 480V, 600V	Amperage Draw Three-Phase 208V	Amperage Draw Three-Phase 240V	Amperage Draw Three-Phase 480V	Amperage Draw Three-Phase 600V
15	1-15KW	51,195	61	1	1	42	37	19	15
24	2-12KW	81,912	98	2	1	67	58	27	23
30	2-15KW	102,390	123	2	1	83	72	36	29
36	3-12KW	122,868	147	3	1	100	87	43	35
45	3-15KW	153,585	184	3	2	126	109	54	44
60	4-15KW	204,720	246	4	2	167	145	72	58
75	5-15KW	255,975	307	5	3	208	181	90	72
90	6-15KW	307,170	369	6	3	250	217	109	87
105	7-15KW	358,365	430	7	4	292	253	127	101
120	8-15KW	409,560	492	8	4	333	289	145	115
150	10-15KW	511,950	615	10	5	416	361	180	144
180	12-15KW	614,340	738	12	6	499	433	217	173
210	14-15KW	716,730	861	14	7	583	505	253	202
240	16-15KW	819,120	984	16	8	666	577	289	231
270	18-15KW	921,510	1,107	18	9	750	650	325	260
300	20-15KW	1,023,900	1,230	20	10	832	722	361	289
330	22-15KW	1,126,290	1,353	22	11	916	794	397	318
360	24-15KW	1,228,680	1,476	24	12	999	866	433	346
390	26-15KW	1,331,070	1,599	26	13	1,083	938	469	375
420	28-15KW	1,433,460	1,722	28	14	1,166	1,010	505	404
450	30-15KW	1,535,850	1,845	30	15	1,249	1,083	542	433
480	32-15KW	1,638,240	1,968	32	16	1,332	1,155	578	462
510	34-15KW	1,740,630	2,091	34	17	1,416	1,227	613	491
540	36-15KW	1,843,020	2,214	36	18	1,499	1,299	650	520
570	38-15KW	1,945,410	2,337	38	19	1,582	1,371	686	548
600	40-15KW	2,047,800	2,460	40	20	1,664	1,443	722	577
630	42-15KW	2,150,190	2,583		21			758	606
660	44-15KW	2,252,580	2,706		22			794	635
690	46-15KW	2,345,970	2,829		23			830	664
720	48-15KW	2,457,360	2,952		24			866	693
810	54-15KW	2,764,530	3,321		27			974	779
900	60-15KW	3,071,700	3,690		30			1,083	866
990	66-15KW	3,378,870	4,059		33			1,191	953
1080	72-15KW	3,686,040	4,428		36			1,299	1,039
1170	78-15KW	3,993,210	4,797		39			1,408	1,126
1260	84-15KW	4,300,380	5,166		42			1,516	1,213
1350	90-15KW	4,607,550	5,535		45			1,624	1,300
1440	96-15KW	4,914,720	5,904		48			1,732	1,386
1530	102-15KW	5,221,890	6,273		51			1,841	1,473
1620	108-15KW	5,529,060	6,642		54			1,949	1,559
1800	120-15KW	6,141,600	7,380		60			2,170	1,732
1980	132-15KW	6,757,740	8,118		66			2,382	1,905
2040	136-15KW	6,962,520	8,364		68			2,454	1,963
2220	148-15KW	7,576,860	9,102		74			2,670	2,136
2250	150-15KW	7,679,250	9,225		75			2,707	2,165
2400	160-15KW	8,188,800	9,840		80			2,887	2,310
2640	176-15KW	9,010,320	10,824		88			3,175	2,540
2820	188-15KW	9,624,660	11,562		94			3,392	2,714
3000	200-15KW	10,236,000	12,300		100			3,608	2,887

Not Recommended

Not Recommended

SAMPLE SPECIFICATIONS

The heater(s) shall be A.O. Smith Dura-Power Commercial Electric Model Number _____ or an approved equal. Heater(s) shall be rated at _____ KW, _____ V, _____ phase, 60 cycle AC. The heater shall be for (vertical/horizontal) installation with lifting lugs and channel skid base. Vessel shall be constructed to Section IV of the ASME Code for 125 psi working pressure. Vessel shall be glass-lined with anodic protection. Entire vessel and electrical controls are to be encased in a rectangular sheet metal enclosure with baked enamel finish. Tank to be insulated with fiber glass insulation. Separate 2" dial type temperature gauge will be mounted on the front of the enclosure. Enclosure to have hinged locking door over electric controls. There shall be _____ individually replaceable _____ KW, 4 bolt flange mounted, incoloy sheathed heating elements each complete with prewired terminal leads. These elements will be switched by magnetic contactors which are operated by a 120V fused control circuit protected by manual reset high limit. Control circuit is activated by a master pilot switch and electronic low water cutoff. The thermostatic control of the contacts shall be in _____ stages through solid state modulating step control which will balance the water heating input to the demand. This control shall prevent the entire electrical load from being switched on instantaneously. The control shall have even load progressive sequencing which utilizes the "first on, first off" principle thereby equalizing the operating time of heating elements and contactors. Each magnetic contactor and heating element circuit will be protected by a maximum of 60 amp cartridge type fuses with a minimum of 100,000 amp interrupting capacity. The entire water heating package shall be prewired to solderless terminal lugs, factory tested, complete with ASME temperature and pressure relief valve and bear the Underwriters' Laboratories label. Heater(s) shall have a 3 year limited warranty as outlined in the written warranty. Fully illustrated instruction manual included.

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OPTIONS

TANK LININGS

CEMENT – A special formulation of cement providing excellent corrosion protection. Available on 200 gallon and larger tanks.

EPOXY – A solventless two component epoxy lining applied to a minimum ten-mil (.010") dry thickness. Available on 200 gallon and larger tanks.

GOLDENROD ELEMENTS – Available with Optional Goldenrod Elements - All DVE/DHE models are available with the Goldenrod 24K gold plated elements (patent pending). Goldenrod Elements provide long-life and five times the scaling resistance of standard incoloy elements. Goldenrod Elements carry a three-year warranty against failure due to scale.

SPECIAL CONSTRUCTION

SILICON BRONZE VESSELS – Are available for special applications or very corrosive water conditions. Consult factory for specific sizes.

STAINLESS STEEL VESSELS – Are available for deionized water. Built with stainless steel under rules of Section IV of the ASME Boiler and Pressure Vessel Code for operation on deionized water having a minimum specific resistivity of 10 megohm/cm.

150 OR 160 PSI WORKING PRESSURE – Must be specified at time of order.

OTHER OPTIONAL FEATURES

TEMPERATURE AND PRESSURE RELIEF VALVES – For working pressures other than standard; consult factory.

HORIZONTAL OR VERTICAL – See specifications, most gallon capacities may be obtained in vertical or horizontal construction.

CIRCULATING PUMP PACKAGE – Circulating pump and piping sized to turn over entire storage capacity of tank once each hour. Recommended to optimize available water at temperature in horizontal tanks particularly where low draw conditions are anticipated.

OPTIONAL INTERNATIONAL VOLTAGES – 380 and 415 volts three phase.

3-1/2" DIAL TYPE PRESSURE GAUGE – Factory installed.

3-1/2" DIAL TYPE TEMPERATURE GAUGE – Factory installed.

11" x 15" MANHOLE – Available as option on tanks 700 gallons or smaller.

CONTROL OPTIONS

COPPER TUBE TANK HEATER – Double wall copper tube tank heaters are designed for heating potable water with both potable or non-potable liquids or steam, and are specifically engineered for installation in models DVE and DHE for dual energy applications. Tank heaters have a positive fail-safe means of leak detection in the event of either tube failure to prevent mixture of heating medium and potable water. Single wall heat exchangers are also available. Refer to pages A 412.3 and A 412.4 for more information.

THERMOSTATIC STEP CONTROL – The simplest form of modulation. Allows elements to be stepped on in groups by specifying additional thermostats (up to one per contactor). It is recommended that number of thermostats not exceed five.

SOLID STATE MODULATING STEP CONTROL – Solid state electronic control device that modulates input to match load through progressive sequencing of steps (up to 20 steps with maximum of one per contactor).

SEQUENCER – Up to 5 stage time delay sequencer provides for stepping of elements in groups or individually (maximum of one step per contactor). Units supplied with this option will have a 120/24 volt control circuit.

TERMINAL BLOCKS – Allows for remote connection to building demand limiter or other functions.

AUTOMATIC RESET HIGH LIMIT – A control that in the event of high temperature, interrupts power, de-energizing elements, automatic reset. (Standard with modulating step control).

INDICATING LIGHTS – Denotes heating stage(s) in operation. Up to one light per contactor is available.

OVERRIDE SWITCHES – A simple means of load control allows all or part of unit input to be controlled manually. Up to one switch per contactor is available.

SAFETY DOOR INTERLOCK – Prevents opening of control panel door when heater power supply is on. NOTE: Once door is opened heater may be energized if necessary for service diagnosis.

SHUNT TRIP CIRCUIT BREAKER – A safety device (circuit breaker) which disconnects power to heater in the event of overcurrent, high temperature or low water level, breaker must be manually reset.

CIRCUIT BREAKER – A safety device which disconnects power to the heater in the event of overcurrent.

A. O. Smith Water Products Company, Inc On Line
www.hotwater.com

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